Missouri

Missouri utilities serve a population of more than 5.3 million and generated 67.8 billion kilowatthours of electricity in 1996. Most of the electricity generated by Missouri utilities is from coal-fired power plants. Unlike the neighboring State of Illinois, Missouri coal deposits are small and have an even higher sulfur content, averaging about 4 percent by weight. As a result, about 90 percent of the Missouri utility coal comes from Wyoming, while the remainder comes mostly from Illinois. Four of the five largest plants in the State, including the largest, Labadie, are coal-fired. The largest utility in the State is the Union Electric Company (UEC), which operates three of the five largest plants in Missouri.

UEC, along with Associated Electric Cooperative, Kansas City Power and Light Company, UtiliCorp United Inc., and the City of Springfield, operate more than 80 percent of the net summer capability in the State. Overall electricity sales increased between 1986 and 1996. In 1996, utility retail sales were 64.8 billion kilowatthours, with residential sales accounting for 40.8 percent, followed by commercial sales, which accounted for 34.7 percent of the total. Missouri's 89 public utilities and 45 cooperatives provided 28.2 percent of retail sales in 1996. Missouri is a net exporter of electricity with a net difference of 3.0 billion kilowatthours between generation and sales.

In addition to its coal-fired generation capability, Missouri also has significant nuclear power capability. In 1996, the State's only nuclear plant, UEC's Callaway, generated 8.9 billion kilowatthours of Missouri's utility generation. Unlike some States with nuclear power, Missouri's average revenue per kilowatthour of electricity is reasonably low at 6.11 cents per kilowatthour, over a half cent less than the national average of 6.86 cents per kilowatthour. Given Callaway's young age, however, UEC may have a significant level of stranded costs associated with the plant if utility restructuring takes place.

The Clean Air Act Amendments of 1990 specified 6,456 megawatts of nameplate capacity at eight Missouri plants to begin compliance with stricter emissions standards for sulfur dioxide (SO_2) and nitrogen oxides. By 1996, SO_2 emissions had shrunk to less than two-fifths of the total in 1986, placing the State's national SO_2 emissions rank at 15.

Missouri has been actively studying retail competition since early 1997 when the Public Service Commission (PSC) established the Retail Electric Competition Task Force to prepare reports to the PSC and study retail wheeling and related issues. In May 1998 ,the task force issued its Final Rule with recommendations on issues including public interest programs, stranded costs, taxes, reliability, and market power. At the same time, a bill was introduced to restructure Missouri's electric power industry and to implement retail competition by January 2000, but no action was taken during the 1998 legislative session. Pilot programs have been instituted.[1]

[1] Energy Information Administration, Status of State Electric Utility Deregulation Activity, http://www.eia.doe.gov/cneaf/electricity/chg_str/tab5rev.html.

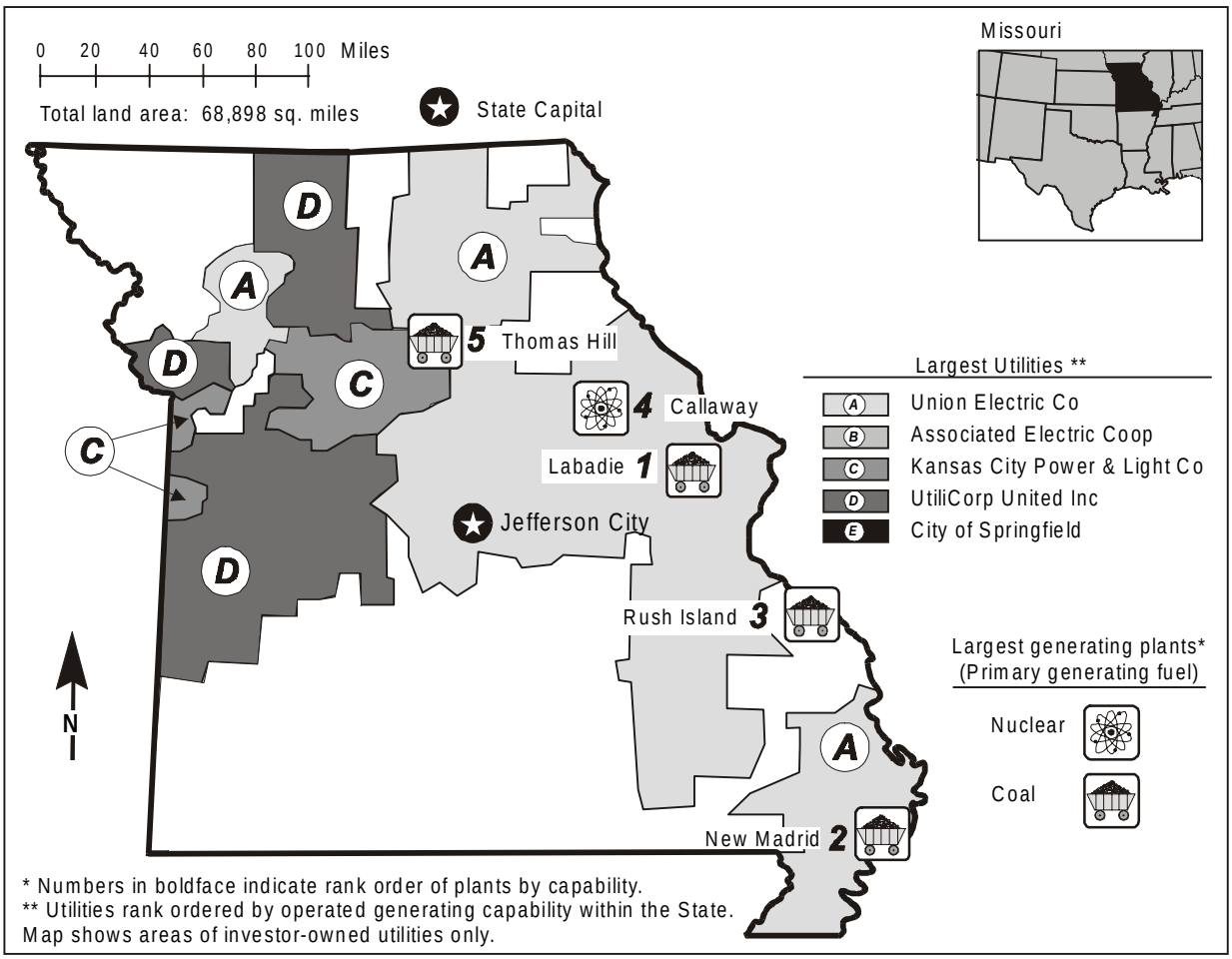

Table 1. 1996 Summary Statistics

Item	Value	U.S. Rank
NERC Region(s)		SPP/MAIN
Net Exporter or Importer		Exporter
State Primary Generating Fuel		Coal
Population (as of 7/96)	5,363,669	16
Average Revenue (cents/kWh)	6.11	[a]24
Industry		
Capability (MWe)	16,087	[b]19
Generation (MWh)	68,124,736	[b]18
Capability/person (KWe/person)	3.00	[b]23
Generation/person (MWh/person)	12.70	[b]23
Sulfur Dioxide Emissions (Thousand Short Tons)	336	15
Nitrogen Oxide Emissions (Thousand Short Tons)	243	11
Carbon Dioxide Emissions (Thousand Short Tons)	64,090	13
Sulfur Dioxide/sq. mile (Tons)	4.87	25
Nitrogen Oxides/sq. mile (Tons)	3.53	20
Carbon Dioxide/sq. mile (Tons)	930.21	27

Item	Value	U.S. Rank
Utility		
Capability (MWe)	15,978	17
Generation (MWh)	67,827,241	19
Average Age of Coal Plants	25 years	
Average Age of Oil-fired Plants	23 years	
Average Age of Gas-fired Plants	21 years	
Average Age of Nuclear Plants	12 years	
Average Age of Hydroelectric Plants	35 years	
Average Age of Other Plants	--	
Nonutility[c]		
Capability (MWe)	109	41
Percentage Share of Capability	0.7	42
Generation (MWh)	297,495	42
Percentage Share of Generation	0.4	42

-- = Not applicable.

Table 2. Five Largest Utility Plants, 1996

Plant Name	Type	Operating Utility	Net Capability (MWe)
1. Labadie	Coal	Union Electric Co	2,300
2. New Madrid	Coal	Associated Electric Coop Inc	1,160
3. Rush Island	Coal	Union Electric Co	1,158
4. Callaway	Nuclear	Union Electric Co	1,137
5. Thomas Hill	Coal	Associated Electric Coop Inc	1,120

Table 3. Top Five Utilities with Largest Generating Capability, and Type, Within the State, 1996
(Megawatts Electric)

Utility	Net Summer Capability	Net Coal Capability	Net Oil Capability	Net Gas Capability	Net Nuclear Capability	Net Hydro/Other Capability
A. Union Electric Co	7,343	5,287	318	39	1,137	562
B. Associated Electric Coop Inc	2,325	2,280	45	--	--	--
C. Kansas City Power & Light Co	2,208	1,304	757	147	--	--
D. UtiliCorp United Inc	950	496	267	187	--	--
E. City of Springfield	662	413	12	237	--	--
Total	13,488	9,780	1,399	610	1,137	562
Percentage of Industry Capability	83.8	--	--	--	--	--

-- = Not applicable.

Figure 1. Utility Generating Capability by Primary Energy Source, 1996

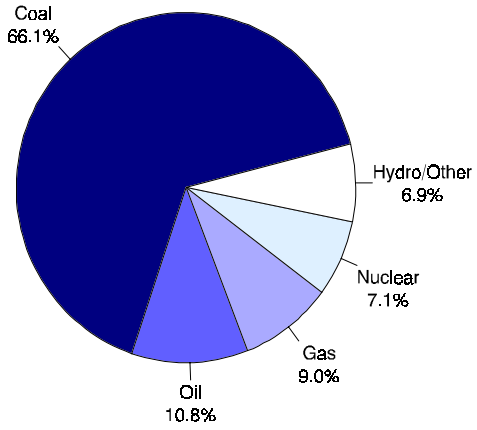

Figure 2. Utility Generation by Primary Energy Source, 1996

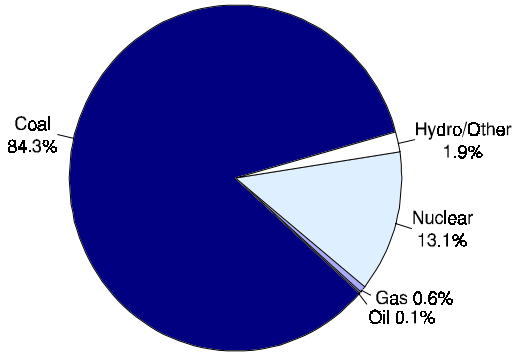

Figure 3. Energy Consumed at Electric Utilities by Primary Energy Source, 1996

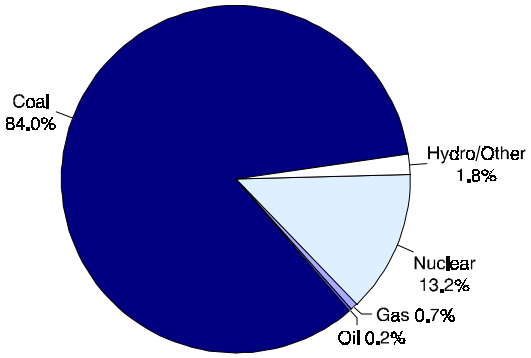

Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1986, 1991, and 1996
(Megawatts Electric)

Fuel	1986	1991	1996	Percentage Share 1986	Percentage Share 1991	Percentage Share 1996
Coal	10,631	10,778	10,557	*71.3*	*70.4*	*66.1*
Oil	1,392	1,533	1,730	*9.3*	*10.0*	*10.8*
Gas	722	761	1,444	*4.8*	*5.0*	*9.0*
Nuclear	1,109	1,125	1,137	*7.4*	*7.3*	*7.1*
Hydro/Other	1,062	1,112	1,110	*7.1*	*7.3*	*6.9*
Total Utility	14,916	15,308	15,978	*100.0*	*100.0*	*100.0*
Total Nonutility	W	107	109	--	--	--

W = Withheld. -- = Not applicable.

Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1986, 1991, and 1996
(Thousand Kilowatthours)

Fuel	1986	1991	1996	Percentage Share 1986	Percentage Share 1991	Percentage Share 1996
Coal	44,855,792	47,907,503	57,176,084	*82.8*	*79.7*	*84.3*
Oil	100,000	118,645	95,980	*0.2*	*0.2*	*0.1*
Gas	79,407	1,043,653	394,796	*0.1*	*1.7*	*0.6*
Nuclear	7,170,229	9,979,371	8,890,377	*13.2*	*16.6*	*13.1*
Hydro/Other	1,995,690	1,071,517	1,270,004	*3.7*	*1.8*	*1.9*
Total Utility	54,201,118	60,120,689	67,827,241	*100.0*	*100.0*	*100.0*
Total Nonutility	W	323,266	297,495	--	--	--

W = Withheld. -- = Not applicable.

Table 6. Electric Power Industry Consumption by Primary Energy Source, 1986, 1991, and 1996
(Quadrillion Btu)

Fuel	1986	1991	1996	Percentage Share 1986	Percentage Share 1991	Percentage Share 1996
Coal	0.469	0.500	0.601	*82.3*	*79.0*	*84.0*
Oil	0.001	0.002	0.002	*0.2*	*0.3*	*0.2*
Gas	0.001	0.013	0.005	*0.2*	*2.0*	*0.7*
Nuclear	0.077	0.107	0.094	*13.6*	*16.9*	*13.2*
Hydro/Other	0.021	0.011	0.013	*3.7*	*1.8*	*1.8*
Total Utility	0.570	0.633	0.715	*100.0*	*100.0*	*100.0*
Total Nonutility	W	0.010	0.012	--	--	--

W = Withheld. -- = Not applicable.

Figure 4. Utility Generation of Electricity by Primary Energy Source, 1986-1996

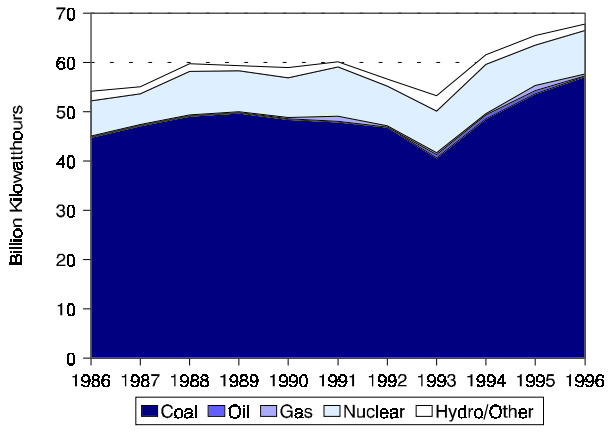

Figure 5. Utility Delivered Fuel Prices for Coal, Oil, and Gas, 1986-1996
(1996 Dollars)

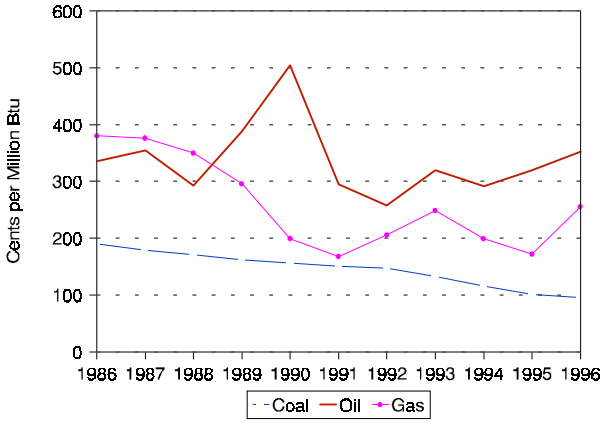

Table 7. Utility Delivered Fuel Prices for Coal, Oil, and Gas, 1986, 1991, and 1996
(Cents per Million Btu, 1996 Dollars)

Fuel	1986	1991	1996	Annual Growth Rate 1986-1996 (Percent)
Coal	189.3	150.9	95.5	-6.6
Oil	335.6	294.4	352.2	0.5
Gas	377.3	167.5	255.2	-3.8

Table 8. Electric Power Industry Emissions Estimates, 1986, 1991, and 1996
(Thousand Short Tons)

Emission Type	1986	1991	1996	Annual Growth Rate 1986-1996 (Percent)
Sulfur Dioxide	909	741	336	-9.5
Nitrogen Oxides[d] . .	266	252	243	-0.9
Carbon Dioxide[d] . . .	53,565	52,156	64,090	1.8

Figure 6. Estimated Sulfur Dioxide Emissions, 1986-1996

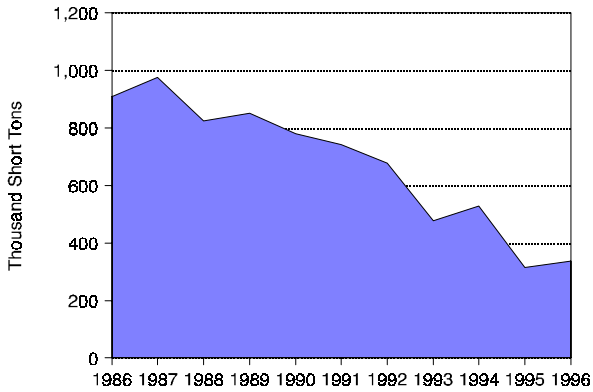

Figure 7. Estimated Nitrogen Oxide Emissions, 1986-1996

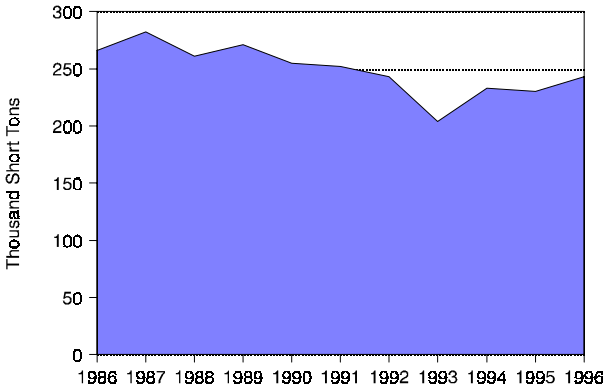

Figure 8. Estimated Carbon Dioxide Emissions, 1986-1996

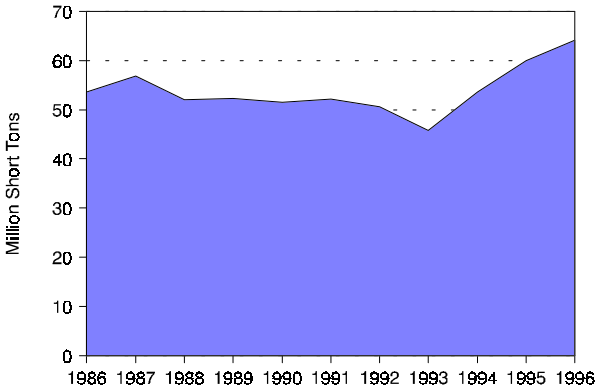

Table 9. Utility Retail Sales by Sector, 1986, 1991, and 1996
(Megawatthours)

Sector	1986	1991	1996	Annual Growth Rate 1986-1996 (Percent)	Percentage Share 1986	Percentage Share 1991	Percentage Share 1996
Residential .	19,477,161	23,386,303	26,447,604	3.1	40.3	41.4	40.8
Commercial	15,303,390	19,111,774	22,522,442	3.9	31.7	33.8	34.7
Industrial . .	12,724,998	13,113,852	14,914,972	1.6	26.4	23.2	23.0
Other	786,649	902,227	958,225	2.0	1.6	1.6	1.5
Total	48,292,194	56,514,156	64,843,243	3.0	100.0	100.0	100.0

Figure 9. Nuclear Power Capacity Factor Comparison, 1986-1996

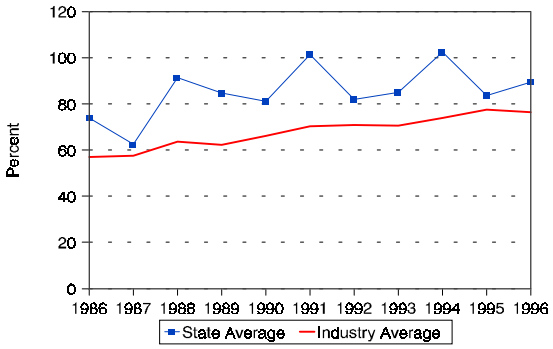

Table 10. Utility Retail Sales Statistics, 1986, 1991, and 1996

Item	Investor-Owned Utility	Public	Federal	Cooperative	Total
			1986		
Number of Utilities	6	90	--	44	140
Number of Retail Customers	1,501,884	339,615	--	442,929	2,284,428
Retail Sales (MWh)	35,026,186	6,007,362	--	7,258,646	48,292,194
Percentage of Retail Sales	72.5	12.4	--	15.0	100.0
Revenue from Retail Sales (thousand 1996 $)[e]	2,899,253	427,114	--	576,455	3,902,822
Percentage of Revenue	74.3	10.9	--	14.8	100.0
			1991		
Number of Utilities	6	90	--	45	141
Number of Retail Customers	1,610,384	340,500	--	497,846	2,448,730
Retail Sales (MWh)	40,372,993	7,345,781	--	8,795,382	56,514,156
Percentage of Retail Sales	71.4	13.0	--	15.6	100.0
Revenue from Retail Sales (thousand 1996 $)[e]	3,009,046	469,553	--	627,812	4,106,411
Percentage of Revenue	73.3	11.4	--	15.3	100.0
			1996		
Number of Utilities	5	89	--	45	139
Number of Retail Customers	1,693,290	361,088	--	566,009	2,620,387
Retail Sales (MWh)	45,440,496	8,664,838	--	10,737,909	64,843,243
Percentage of Retail Sales	70.1	13.4	--	16.6	100.0
Revenue from Retail Sales (thousand 1996 $)[e]	2,843,867	474,865	--	643,163	3,961,895
Percentage of Revenue	71.8	12.0	--	16.2	100.0

-- = Not applicable.